The MAC Flyer

OCTOBER 1980

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The MAC Flyer

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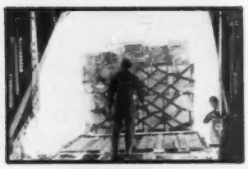

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FLYER FORUM

Hazard Reporting by the Numbers

A safety hazard can be described as an accident that hasn't happened yet. The fact that no mishap has taken place makes the hazard report a particularly effective tool in the accident *prevention* business. Prevention, by definition, must be accomplished *before* the fact. When we're faced with a smoldering pile of aircraft parts, we can only hope to prevent the *next* mishap—we've obviously failed to keep this one from happening. With comprehensive hazard reporting we can prevent accidents more effectively, because we have a lead on the unsafe conditions which could cause the next mishap.

Accident investigations often uncover circumstances which existed for a long time before they finally caused a problem. Usually someone, or a number of people, were aware that certain hazardous conditions existed. They either did nothing about them, or were unable to correct them. Inevitably the question comes up, "How come you never told anybody about this?" The answer seems equally inevitable, "Nobody ever asked me." Supervisors and commanders should encourage hazard reporting.

In almost all safety studies involving numbers, the lower the number the better the program—except hazard reporting. In this area alone, an exceptionally low rate may be a cause for concern. It might mean potential hazards are being ignored for any of several reasons.

Unit members may mistakenly think that a large number of hazard reports will reflect unfavorably on their organization or commander. Inspections, staff visits and other management tools [in the Navy] have shown this isn't true. Quite often the best, most effective units are those with a high number of hazard reports—and consequently the ones with more corrected safety deficiencies.

How many times have we gone out on trips and been exposed to unusually hazardous situations, or just experienced an exceptional incident in flight, and then, once safely back on the ground, "forgotten" to mention it to anybody? Reminisce a little. When was the last time you heard about a really dangerous situation in a casual environment—like at "happy hour"? Did you know about it before that conversation because you'd been informed through more formal channels—such as a safety meeting? Probably not! If the hazard isn't reported and written up, then the chance of preventing a mishap are greatly reduced. Give the next flyer a break. When you encounter a hazard, report it, and tell the whole story.

—Adapted from USN's *Weekly Summary*

At Red Flag, MAC crews get shot down and live to learn from it.

Ten Missions Ahead

by 1Lt Ben Rich
2069 Comm Sq
Nellis AFB, Nevada

Editor's Note: *During June and July 1980, MAC crews and aircraft from several bases participated in Red Flag 80-4, one of the biggest ever. The 463 TAW, Dyess AFB, the 62 MAW, McChord AFB, and the 130 TAG (ANG), from Charleston, West Virginia, provided tactical airlift aircraft and crews. Besides airdrop and airland sorties, the C-130s demonstrated their capability to support A-10 aircraft at an austere forward operating location. Also, a C-141B from Altus AFB tested its engine-running offload capability as part of the exercise. MAC's entire involvement in this Red Flag went off without a serious mishap—reflecting a superb safety effort on the part of aircrews and support personnel.*

We approached the rocky ridge at 210 KIAS and 300 feet. Being number three in a three-ship formation, we were bounced around by a combination of turbulence off the first two Herks and the convective currents from the oven-like desert floor.

Crossing the ridgeline, we spotted our target, an enemy airfield three miles ahead. We were 45 seconds out and the last of 16 A-7s was just pulling off the target and heading right at us at 500 feet AGL. Two-hundred feet of vertical separation while coverging head-on at over 600 knots is frightening. After neutralizing the target defenses, the Corsairs' job was to clear our "six" of any bad guys, and then daisy chain over us as we egressed from the target area.

With 40 seconds to go, the copilot called, "Bandit at four o'clock!" Jinking would have hindered our run-in to the target. The A-7s were a few seconds away and the enemy aircraft was heading towards us at about 0.9 Mach and closing quickly. We could see the black snouts of the fighters clearly as they raced to intercept the bandit before he could pepper us with cannon fire. The next few seconds seemed like an eternity.

For 47 minutes we had been hiding in the valley's shadows and listening for the calls of enemy positions from the E-3A AWACS. From the radio chatter, we knew that our Mig-cap of 20 F-15s had engaged a superior force of 36 enemy fighters, and were battling for their lives. They were going to be late getting to us, so our chances of survival depended on not being spotted.

Now, less than 20 seconds from our target, it was a race for *our* lives. The A-7s won, but only by a micro-second. The sight of 16 Corsairs was enough to deter the hostile fighter pilot, and he lit

the burners and headed for safer skies to the north.

About seven minutes after a perfect aerial delivery, another lone enemy fighter jumped us from nowhere. Before our escort could smoke him, he "picked off" our number two man. The bandit was then shot down by the A-7s, and the remainder of our return to base was uneventful.

The scenario you have just read actually occurred; and although there were no deaths, no cannons fired, and no missiles launched, 20 Eagles did indeed engage 36 enemy fighters, and the fighting was fierce and realistic. Our C-130s were jumped no less than five times on our ingress and egress routes, yet we all lived to tell about it.

This is Operation Red Flag and by mid-morning of 15 June 1980, approximately 60 pilots had another realistic combat mission under their belts, and had gained vital experience which might someday save their lives in a real combat situation. Under the guidance of the 4440th Tactical Fighter Training Group, Operation Red Flag is held several times a year on the vast range complex located north of Nellis AFB. Its mission, simply stated, is to provide a realistic training environment in which aircrew members can gain experience which will enhance their survival in combat.

During the conflict in Southeast Asia, we discovered that most of our losses occurred during a pilot's first ten missions. Red Flag is designed to provide the aircrew with experience like those first ten missions. Most of the enemy fighters described earlier belong to the 64th and 65th Fighter Weapons Squadrons based at Nellis, and are really modified F-5Es which closely approximate the size, paint scheme, and flight characteristics of the Mig-21. Aggressor pilots are trained in Soviet tactics and doctrine. For additional realism in today's mission, TAC F-106s and Navy F-4s flew against us simulating the "Flogger" threat.

This particular Red Flag was special, because the four-week exercise demonstrated Air Force capabilities in support of a Rapid Deployment Joint Task Force scenario in which Military Airlift Command plays a vital role.

MAC aircraft in today's mission were from the 463d Tactical Airlift Wing, Dyess AFB, Texas. All of the MAC aircrews I talked with were impressed with the importance of their involvement in Red Flag. According to Capt. H. T. Horii, a C-130 instructor pilot with the 774th TAS, "MAC crews are introduced to a new environment of low-level flying and terrain masking while facing a realistic threat. Unlike many low-level training routes, here we have the flexibility of making our own route. It is not canned."

Many of the pilots also commented on the realism of the threats—enemy surface-to-air missiles which are simulated by both electronic and visual means, and a host of enemy fighters. Major J. E. Blackwell, 463 TAW Stan-Eval, explained that flying at 300 feet AGL instead of the 500 feet AGL to which MAC crews had previously been restricted, "probably increases our chances of survival by 50%." He went on to say, "Here, our crews actually learn to interface with their fighter cover. This allows both the fighter pilot and transport pilot to learn each other's capabilities, especially the art of providing air cover for 'slow movers'."

One of the problems facing MAC crewmembers is the availability of realistic training routes. Although the C-130 pilots are allowed to train on routes as low as 300 feet AGL, they are prohibited from doing this until an environmental impact study is completed on each track. Red Flag does not have these restrictions, thus providing an outstanding training arena.

As with most units, the 774th selected their squadron instructor pilots to participate in the exercise. They will now return to their units and pass this new knowledge to the other aircrews.

Here are a few notes to keep in mind if you are Nellis bound, whether for Red Flag or just cross country. The Las Vegas area is one of the busiest pieces of airspace in the world. Last year there were over 700,000 takeoffs and landings at the three local airports. Daily traffic generated by the 57th Fighter Weapons Wing and the 474th Tactical Fighter Wing at Nellis can be very heavy. A heads-up, eyes-open posture is essential.

Nellis AFB is located in a terminal control area, and using a SID is mandatory. Crews should have a copy of the appropriate procedures on board or expect a costly delay while transient alert runs a copy out to their aircraft. Tower controllers would like you to keep tactical patterns as tight as possible. While the MAC birds return from the range with lots of gas on board, the fighters are sometimes approaching fumes on the fuel gauge, and can't afford an extended pattern while the Herks and Starlifters land.

Participating in Red Flag is motivating and exciting, and it provides something for which there is no substitute—experience. If the opportunity to be a player comes your way, don't pass it up.

A philosophy for survival:

They're Still Trying to Kill You

by Maj Gary M. Sloop
Chief of Safety
Eielson AFB, Alaska

Not too many years ago, most of our crewmembers had a philosophy to which they attributed at least a small measure of their success in keeping themselves out of trouble—a philosophy born of a need for self-preservation. Simply stated, this philosophy was, "They're trying to get me killed."

There was good reason for this attitude. Back then the aircrew was pretty much on its own. Regulations and directives were not as specific as we know them today, and many things were left open to interpretation. There was little to protect the crew from overzealous operations and maintenance officers. The few rules in existence were often stretched and the aircrews compensated for the lack of adequate guidance with a considerable degree of defensive skill and cunning.

Flying in that environment was much different than flying today, and the "kick the tires, light the fires" days had both their good and bad points. While crewmembers gained a sense of resourcefulness and a can-do attitude, their actions also often resulted in unnecessary mistakes. We called it pilot error, supervisory error, etc., and efforts to reduce this type of accident resulted in more and more rules and regulations in what amounted to an attempt to legislate safety.

This method of reducing accidents left something to be desired. Although it had its effect on the mishap rate, unforecast side effects began to be felt. We became overburdened with regulations and directives which stated procedures or actions, but not the reasoning behind them. Consequently, their significance was often lost to the reader. Most of these regulations were designed to protect us from ourselves, to prevent us from making the same mistakes over and over; but some resulted from attempts to regulate safe practices rather than correct the causes of problems. The emphasis seemed to be on regulation rather than prevention. We eventually came to the conclusion, however, that over regulation and over control are not the answer. Our deluge of directives resulted in a very serious aircrew problem—complacency. Not the complacency we normally associate with accidents, but a more insidious problem.

Let me explain it this way. We became used to having a reg to cover every eventuality. And we felt secure that everyone *else* knew about the same regs and directives. Consequently, when we were told something by a controlling agency or supervisor, we assumed it was correct—'tain't necessarily so. This is where we are getting into trouble today. Our people have lost the old "they're trying to kill me" survival instincts, and now tend to assume that, no matter what happens, somebody or something will tell them how to handle things—to spoon feed them IAW regulations. Even though we now have directives and guidance for almost all situations, we still haven't eliminated accidents. The "human element" keeps cropping up and causing problems.

For example, just because ATC tells you that you're cleared to FL 190 doesn't mean that there isn't conflicting traffic. Just because the weatherman tells you there are isolated CBs along your route of flight

We became used to having a reg to cover every eventuality.

doesn't mean you won't encounter solid lines. Just because the computer flight plan routes you from point A to point C via point B doesn't mean you'll be cleared that way. Just because your supervisor tells you it's okay—it isn't necessarily right.

Never assume anything! "They" are still trying to kill you. Maybe not intentionally, but the fact remains that unless you evaluate your actions and their potential consequences, you could easily be led down the proverbial primrose path. Let's look at a few real-life examples.

A C-130 aircrew experienced elevator buffeting and sluggish control response during a formation takeoff. As airspeed in-

creased, the buffeting became a rapid oscillation accompanied by quick fore and aft movements of the yoke. The pilot broke formation and performed a controllability check and numerous other troubleshooting procedures—all to no avail. The crew initiated a Conference Skyhook and proceeded to follow the advice of the "experts." First, the crew duplicated most of the troubleshooting procedures they had previously accomplished. Then the people on the ground recommended another controllability check—this time with both elevator boost packs turned off (in direct conflict with a Dash One warning). The Herk began to descend at a pretty good clip and the crew's unassisted control inputs didn't have much effect. When the boost packs were finally turned back on, the 130 showed the crew some unusual attitudes and they learned first hand the reason for not removing all hydraulic assistance from the flight controls. Obviously, there should be a better way to teach this kind of lesson.

Some time ago, a U.S. Army officer who was project chief for a series of test airdrops told one of our aircraft commanders that it was okay for him to perform a "tailgate" personnel drop (jump troopers from the cargo ramp) during the tests. There are no established procedures for this kind of a drop, and to do so requires a waiver from MAC Headquarters. However, since another aircraft commander had already made a decision to perform a tailgate drop, the AC of the mishap bird *assumed* that the procedure was authorized. He then complied with the test director's request to fly short racetrack patterns. During the events which ensued, a young loadmaster fell to his death.

In another incident, a Conference Skyhook was initiated by a CT-39 crew with a landing gear problem. The transcript of the Skyhook reads like a Keystone Kops routine. Some of the comments included in the investigating officer's analysis were: "Supervisory personnel involved in the Conference Skyhook at times approved or directed procedures not in accordance with the flight manual. Conference Skyhook procedures were not correctly initiated or controlled throughout the emergency situation. The transmittal of guidance to the aircrew was uncontrolled and could have had serious consequences." This

You should never blindly follow instructions from anyone.

crew was lucky. Although they had *failed to follow the correct Dash One procedures*, and Conference Skyhook had provided them with all sorts of erroneous instructions, the result was a belly landing—fortunately with no injuries and relatively minimal damage.

My intent here is not to degrade Conference Skyhook procedures. Skyhook puts the crew in contact with the experts, and aircraft saves have more recently and frequently resulted from this kind of coordination. My intent is to show crewmembers that they should never blindly follow instructions from anyone. Using a little common sense could prove invaluable.

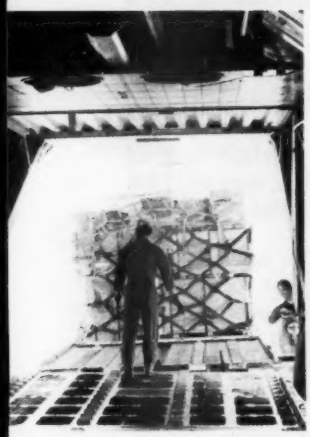
It's going to take a lot of effort by supervisors at all levels to solve the judgment-vs-obedience dilemma. We train our people to follow directives to the letter, to always use a checklist, to turn off this switch if that warning light comes on, etc. As a result of this philosophy, some of our people lack the ability or initiative to solve problems independently. In many cases people are aware of the "how," but no longer appreciate the "why."

The advantages of having guidance available to cover many different circumstances is obvious, but the time has come for us to swing the pendulum back in the other direction. Unless we start teaching a few "whys" and allowing our people to make the decisions they should be making, they will never be able to develop good judgement.

Man's value is his ability to reason. If we want automation, we can build a machine. What we really need to do is teach our people the facts, the alternatives, and the consequences. Our objective should be to fully develop each person's abilities to think and to act in a rational manner, not to try and create a written regulation to cover every possible situation. Some time ago our aircrew members reached a point where they could no longer retain all the specifics of the considerable number of regulations they are supposed to follow. The future will bring continuing improvement. People are becoming aware of the problem, but changes are not going to happen overnight. In the meantime, watch out—they're still trying to kill you.

Flying can be a losing race against the clock if you don't . . .

Pace Yourself



by Maj James G. Gibson II
Supervising Editor

Bright sunshine causes the runners to squint as they hold their positions in the starting blocks. Crouched and poised like coiled springs, they anxiously await the starting pistol. Its crack echoes across the stadium and eight lithe figures leap forward as if propelled by a common launching device. Before long the pack begins to break apart, with two hard chargers pulling out ahead, and a trio of already outclassed thinclads dropping back. At the half-way mark the two leaders are still ahead, but in the number three position something curious is happening. A fellow who was buried in the middle of the pack until now is emerging. So oblivious is he to what the others are doing, he almost appears to be running all by himself. His powerful legs beat out a rhythm as steady as the drivers on a locomotive, and even an occasional challenge from the others in the pack fails to cause the slightest variation in his stride. Nearing the three-quarter point, he steadily overtakes and passes the number two runner as that individual's

endurance begins to desert him. Coming into the home stretch, he steadily closes the gap between himself and the leader, and at the appropriate moment he taps a reserve of power he's been saving for this opportunity. Speeding up without altering his steady stride, he pulls even with the front runner, passes him, and is clearly out ahead as his chest snaps the tape.

By now you may be wondering who this apparently late-blooming king of the cinders is. Actually he could be anybody from Jesse Owens to Bruce Jenner, running in any of the many races they won, but it really doesn't matter. This narrative is imaginary, and is intended only to point out an important quality which is vital for success in racing and any number of other endeavors—including flying. That quality is the ability to pace yourself.

The analogy between running a footrace and performing as a crewmember on a flying mission is particularly appropriate because, in both cases, you are participating in an event that keeps on moving whether you are ready or not. If you are ready and you pace yourself correctly, you can come out ahead; if you don't, you'll probably be left behind. In the flying game, the latter usually manifests itself in the victim always fighting an uphill battle. Practically everything that happens comes as a surprise, and just trying to keep up with routine duties leaves little or no room or energy for coping with any extra challenges that may arise. At their worst, these are the kinds of pilots who land with the gear up, or allow the plane to crash while they troubleshoot a relatively non-critical maintenance problem.

On the lighter side, we've all seen annoying but humorous examples of this type of crewmember in action. There is the ineptness epitomized by a new copilot who doesn't know what to expect next and finds himself busily trying to complete the before-takeoff checklist while he's being interrupted by the AC telling him to copy the departure clearance he's missing because he didn't have his ear tuned for the aircraft's callsign. Of course, he hasn't familiarized himself with the SIDs beforehand, so he has absolutely no idea of what's coming in the way of a clearance. He misunderstands the controller's instructions, and requires two repeats before he gets the radials and altitude restrictions read back correctly. Then, just as he finishes copying the clearance, the engineer asks him what the third destination on the day's itinerary is. Instead of telling him to stand by, the right-seater begins groping around in the trip kit for the mission folder, only to have the AC yell at him again to get on with the checklist before they buy a crew delay for a late takeoff. "Yee gods," he mutters to himself as his armpits become sodden and he feels excedrin headache number 37 starting to pound inside his cranium. "How can all this be happening to me when I graduated in the top ten percent of my pilot training class?" Fortunately, his question is drowned out by the roar of the engines spooling up for takeoff.

Later on, he'll look back at days like this and laugh,

especially as he watches other new guys going through the same agonies while *they* learn the ropes. If he is as sharp as his training folder says he is, however, it doesn't take long for this young eagle to figure out why he's behind the eight ball, and he soon changes his modus operandi. Becoming familiar with the order of business in a cockpit, he sets up his priorities accordingly and begins using his time and energy more wisely and effectively.

But there are some crewmembers who never seem to learn the secret of how to become a genuine flight deck professional. I remember one ancient copilot in particular who was a *classic* bozo. Somehow he had survived a combat tour as a trash hauler in Vietnam and his sarcastic nickname, unbeknownst to him, was the Tuy Hua flash. One of his favorite tricks was consistently picking the busiest part of the letdown or approach to fumble around lighting and smoking a cigarette. You would have thought he was at home in his La-Z-Boy as radio calls, checklist items and just about everything else taking place in and around the airplane went right past him. One of his big complaints by the way, was that in spite of all his years of experience, the squadron wouldn't let him upgrade to AC. For the life of him he couldn't understand why! Flying with this *ace* would drive you crazy, because not only did he lack the ability to pace himself, he actually had no common sense at all for in-flight priorities. About all he ever got done was what he felt like doing at the moment, or was prodded into doing by the AC.

From a personal standpoint, my first lessons in the importance of pacing and priorities were hammered home while I was still a brand new line navigator in C-124s. Flying basic nav on 10 to 12-hour overwater legs day after day (or night after night), you either learned to pace yourself, or you spent all your crew rest in the sack trying to recover enough to make it through the next day's flight. As a conscientious student trying to get checked out in Old Shakey, I found myself working like a dog for hours on end and never even having enough spare time in flight to eat my box lunch or hit the honey bucket. Like the typical young copilot we looked at earlier, I couldn't believe what was happening to me. By the end of a ten-hour or more flight across the Pacific I was exhausted, and just about useless as far as being alert enough to monitor the descent and approach. After several trips, I got onto the mechanics of global navigation a-la-MATS pretty well, but I was still working way too hard too much of the time. Luckily, a wise and

perceptive old instructor navigator finally went out on a trip with me. After watching my furious activity for a while, he astutely suggested that I set aside part of each hour to suck up some 100 percent oxygen for a few minutes (C-124s were unpressurized), get up for a drink and stretch, eat some of my box lunch, etc.—in other words, relax and regroup. Although it was tough at first to make myself lay down the plotter and paperwork and just take a breather, I soon found out that not only did I have that time to spare, my accuracy and speed actually improved when I returned to the tasks at hand refreshed. Soon, I was able to refrain from falling asleep with my face in the APS-42 scope during the approach, and I could even hit the ground with enough steam left over for a modicum of extracurricular activities during crew rest.

Nowadays we may fly better airplanes, but the physical and mental demands of the mission are every bit as taxing as they used to be. We still face long crew duty days, flying is still physiologically debilitating, and we have the ever-present challenges of mechanical malfunctions, troublesome weather and the need to be our sharpest at the end of a mission—during the approach and landing, when over half of all serious aircraft accidents occur. Basic as it may sound, knowing your crew duties and equipment, setting up your priorities and pacing yourself so that you can get the important items done, stay on the positive side of the power curve most of the time and have the reserve you need to give you the stamina for coping with emergencies is still what flying safely is all about.

With self-examination being a popular pastime these days, I have prepared several questions for you to ask yourself. There's no score at the end which will tell you if you're a good guy or a bad guy, but there should be a lot of food for thought and the impetus for more than a little soul-searching as you read along.

1. Do I know my crew duties (and keep abreast of new developments) well enough so that I seldom get caught flat-footed by "surprises," or are things always popping up which I didn't expect but perhaps should have been aware of or anticipated?

You are participating in an event that keeps on moving whether you are ready or not.

2. Am I consistently physically and/or mentally exhausted at the end of a routine crew duty day (or night), or even before the end of it?

3. Does my work seem to have distinct peaks and valleys most of the time—periods consistently varying between having too much or not enough to do?

4. Do I frequently (or consistently during certain phases of flight) have a hard time keeping up with what is going on? For example, am I ready with timely and correct responses to checklist items, clearances, ETA requests, load messages, required radio calls, etc.?

5. Am I able to maintain continuous awareness of my location with regard to terrain and obstacales during descents, approaches, or any time the airplane is involved in flight below minimum safe obstacle clearance altitudes?

6. Do I feel good about myself as a crewmember most of the time and find that my feelings are reinforced by praise and recognition of my professional qualities by others?

Admittedly, everybody has good days and bad days. But if you honestly evaluate your performance as a crewmember in relation to the above questions and you find that, based on your overall batting average, you are coming up with even one response that leaves you feeling uneasy, you are a candidate for self-improvement. It should start with you taking a close look at the requirements of your particular crew position establishing some definite priorities, and making a conscious effort to pace yourself accordingly during every flight. Even if you are presently optimizing your time pretty well, you could still be working harder (and less effectively) than you need to be and wasting precious energy. With your resources taxed to the limit, you might someday find yourself in the position of the runner in our opening example. He was out in front the whole race, but didn't have any reserve energy to call on when a genuine challenge cropped up. Result? He was nosed out at the critical moment. With proper pacing, you will stand a much better chance of being like the runner who comes from behind, to win. Because he knows what he is doing, sets his pace, and runs his own race, he finishes as winner.

EXCELLENCE IN AIRMANSHIP

Left to right: Capt Gregg N. Clymer, IAC; 1Lt Jimmie C. Jackson, CP; 1Lt Robert K. DeBlanc, CP; Capt Florence E. Parker, N; SMSgt Paul J. Nelson, FE; Sgt Kim B. Frey, Dropsonde Operator.

Captain Clymer and crew from the 53d Weather Reconnaissance Squadron, Keesler AFB, Mississippi, recently overcame a serious flight control malfunction aboard their WC-130. Gull 11 departed Point Mugu NAS, California, on 20 May 1980, and cruised at FL 190 toward Kirtland AFB, New Mexico. About 45 minutes out of Albuquerque, the aircrew heard a loud popping noise and the right rudder pedal jumped violently. The Hurricane Hunting Hercules then started a series of violent yawing motions which the autopilot attempted to dampen without success.

The AC disengaged the autopilot, took control of the WC-130, and directed Senior Master Sergeant Nelson, flight engineer, and Sergeant Frey, dropsonde operator, to inspect the Herk for damage. They soon discovered that the right rudder cable had snapped under the flight deck. Captain Clymer declared an emergency, and Captain Parker told the rescue command post at McClellan AFB about their problem.

With the help of Lieutenant DeBlanc, Captain Clymer and Lieutenant Jackson swapped seats. Moving from his instructor's position in the right seat to the left seat, the Captain could use nosewheel steering to keep complete control of the 130 during the upcoming landing roll. Lieutenant Jackson picked up copilot dutues in the right seat.

Checking the weather at Kirtland, the crew learned that the winds were from 290 to 320 degrees at 8 knots with gusts to 15; the active runway was 08. As Gull 11 started its enroute descent, the aircrew decided to request an approach to runway 26. By landing to the west, the Hercules would encounter a right crosswind requiring right aileron and left rudder on final to set up for a standard wing-low approach and landing. They also decided to make a no-flap approach so that a higher airspeed could be maintained, thereby making the rudder more effective.

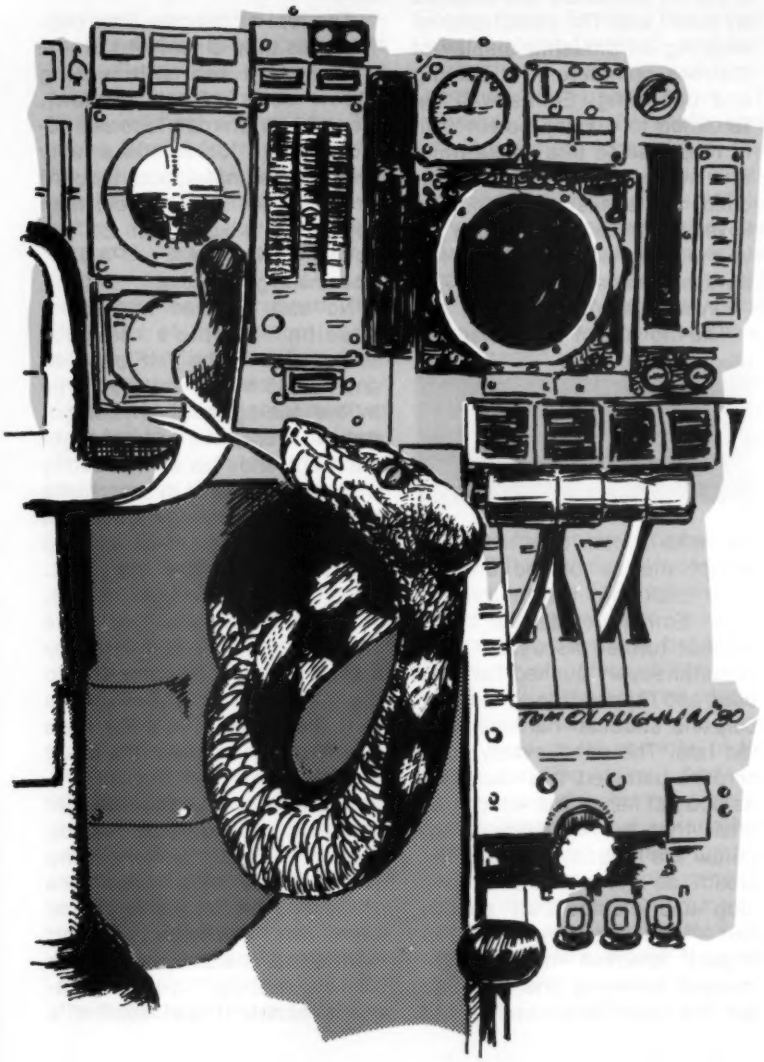
Captain Clymer flew the Hercules to a long straight-in visual final and configured the aircraft for landing. The WC-130 touched down on center line and less than 1,000 feet from the threshold of runway 26. Skillful application of reverse thrust, nosewheel steering and brakes then brought the aircraft to a stop on centerline.

The crew's professional handling of a serious inflight emergency effectively prevented the loss of a valuable MAC aircraft and saved the lives of the crew and three passengers.

Pouring a little snake oil in on his tongue, a veteran pilot tells about an unusual emergency.

Aviation Herpetology

by Lt Col Charles W. Hines
HQ MAC Stan-Eval
Scott AFB, Illinois



Perhaps you've heard bits and pieces of this story. Now, it's time to put them all together in one place. It may happen again—to you. The facts are simple enough: The basic Starlifter crew was entirely female, current, and qualified. They showed just a little before sunrise when it was still cool out on the leghorn at Clark. The load hadn't been pulled, there was no computer flight plan available, the cowl was open on number three engine, and the troop with the wrench said parts-plus-one-hour. Emma was a no-nonsense aircraft commander, but it took a while before she finally got everything together and the crew started engines. By then the sun was out of bed and it was pretty hot in the cockpit. Emma checked the flight controls in response to the checklist. A little water dripped from each aileron. She felt a slight yielding resistance to the force she applied to the rudder pedals. So, she checked them again and this time the rudders felt fine, "Checked."

Departure was routine and the clearance was to climb on course. Bertha was still sweating at level off. "Cruise check completed." Bertha was a super copilot. She quickly became busy punching waypoints into the inertial memory. Hazel was doing her

Honorable Mention, 1980 MAC Flying Safety Writing Contest

thing at the engineer's panel—balancing the fuel, checking the bleed system, and starting the log. The other engineer, Snurf, was back on the lower bunk working on the 781. Her given name was Pearl but everybody called her Snurf because of certain social propensities. Candy Sue was cleared off interphone, checked the load and tie-downs, then passed coffee up to the flight deck. Things looked pretty normal. The engines sounded good.

Emma pushed her seat back a bit, gave it two clicks of recline, and put her boot up on the footrest. She severed the masking tape on the flight lunch box with her thumbnail. Her deliberate gnawing produced a gentle shower of fried chicken crumbs which went sliding down the front of her flight suit. It was a good day to go flying.

As she cross-checked the instruments, her eyes stopped on a bizzarre image suspended above the right rudder pedal. Almost as though it belonged there, a huge snake's head was staring up at her as she ate. It had no eyelids, the pupils of the eyes were straight up and down, and there was a hole where its lips belonged big enough to hold a small cigar. A dark, forked tongue leaped in and out of that hole. The snake observed her without any sense of malice. She remained still, stared back at the reptile, and thought of sticking her tongue out at it in a primitive form of retaliation.

Emma controlled the rage growing within her as she concluded that the head was just *too* large and the tongue *too* long. Both betrayed reality and she decided that the snake head was a put-on produced and directed by Snurf with the expectation of creating an amusing display of distress complete with leaping and bellowing. Emma was determined to display no emotion in response to this snake trick. She sat back in her seat, watched the snake's tongue, and keyed the mike, "Really nice job you did on the snake, Snurf. I've always liked green ones best."

"What snake?"

The movement of her hand to the mike switch resulted in an abrupt motion of the snake's head back into the instrument area. Emma decided to move without further discussion. She simultaneously pushed her seat back and flipped free of the seat belt and shoulder harness—but too late. The unbelievably large serpent unreeled and launched its body at her with a velocity so great that her eyes could not follow the motion. She held her breath as the snake formed a loop and clamped all sixteen feet of itself around her. The impact knocked her headset forward, covering one eye. She felt the coils compressing and

Pan! Pan! Pan!
The snake got Emma!

looked at the detail in the snake's scaly hide. She could feel its coolness on her cheek. Emma had never been up close to a snake before; she noticed it had a distinct odor of cucumbers.

The rest of the crew were confused as they discovered Emma wrapped in the shimmering green coils of the serpent. Bertha saw Emma's face and decided that it looked like a rusty lemon. She unstrapped, thought better of her urge to flee, then keyed the mike switch on her yoke, "PAN. . .PAN. . .PAN. . . The snake got Emma!"

No one received that transmission. Bertha's selector switch was in the VHF position and 123.45 MH_z was displayed in the tuning head. Hazel got right to work, dug out her flight manual, and leafed randomly through Section III in search of a published emergency procedure about what to do when a snake wraps itself around the pilot. She never found it, of course. That procedure, along with the one about what to do if struck by a meteor, had never made it to the printer. The squeeze was still on Emma. Candy Sue clearly meant to go at the beast with the crash axe but was restrained by the sudden insight that it would be difficult to chop the snake without also chopping Emma. While these things were going on, the snake remained calm and unconcerned and maintained a steady eye on a blinking fuel light on the engineer's panel. It just applied a

little more pressure with each of Emma's shallow breaths.

By this time Snurf had thought out the problem and began organizing the tools. She went down to the cargo compartment, got the broom, then gathered up all the flight lunches and stray food from helmet bags. Candy Sue, gloved to the elbows, grabbed the snake's head and held a firm grip. The snake hissed from deep within its coils and shifted its lower jaw back and forth in an intimidating partial yawn. She then forced the jaws apart, and Snurf began stuffing food, both wrapped and unwrapped, into the maw of the serpent. Snurf poked the flight lunches down the cavernous throat using the broom handle as a ram, much as one would load a great cannon. The snake resisted little and seemed to like the chicken, bread, and pickles. Down deep went the mustard, salad dressing, and accessory packs. In went the juice, can and all. They fed it a checklist, and some maps. The exterior of the snake was becoming visibly irregular and bumpy from its multi-course inflight meal.

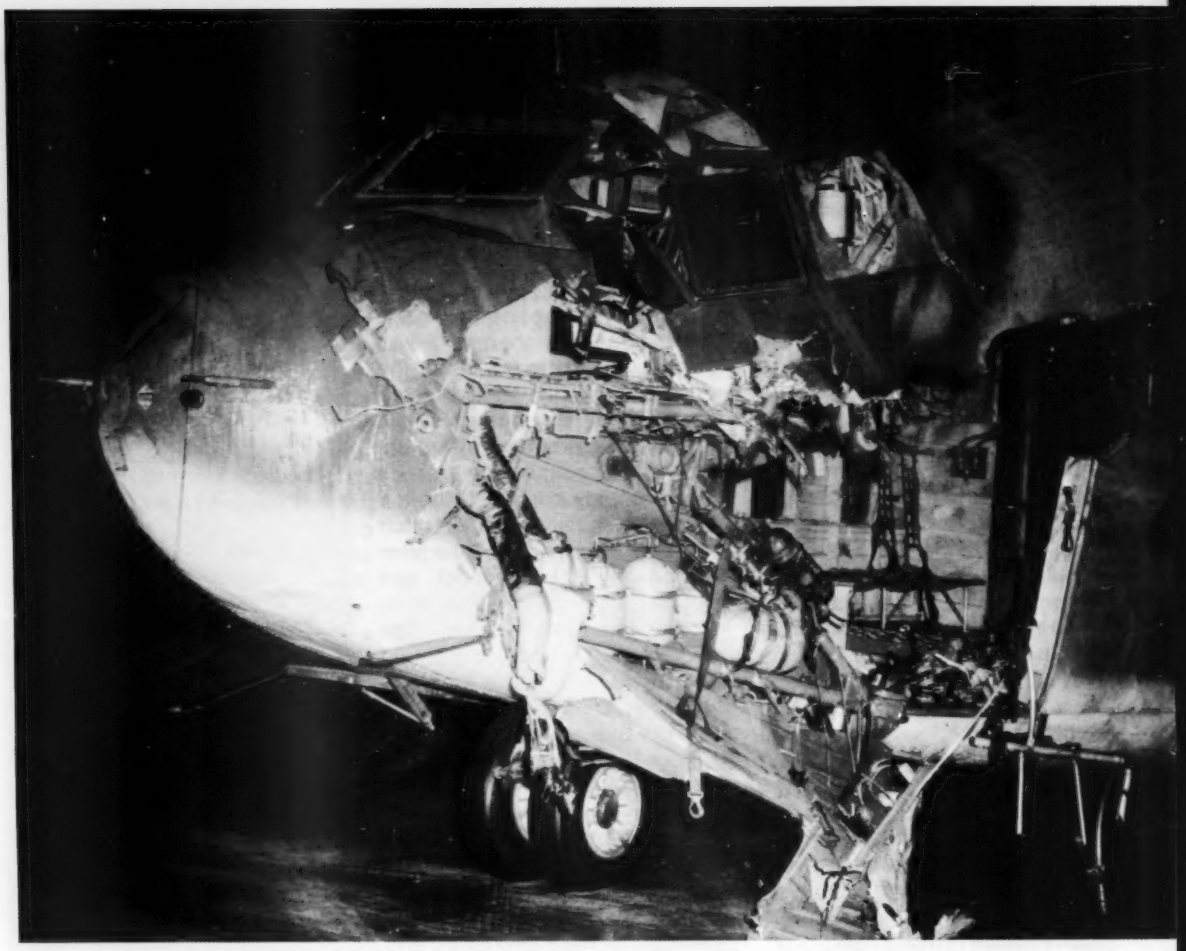
Emma worked her left arm free and with great effort pulled the quick-donning mask over her face. The oxygen was a relief as was the escape from the odor of cucumbers. Candy Sue cinched a tie-down strap around the snake's body just below the visible line of its recent meal. She fastened another strap just aft of the head, creating a pair of exterior check valves. After a carefully considered discussion about how long it would take to get the snake to surrender from the effects of indigestion, they decided to use another tie-down strap and manually winch it loose from Emma. The strap was fetched, fastened, and run through the vertical post supporting the upper bunk. It worked, and as the snake was slowly pulled loose from the pilot it suddenly ceased resisting and finally came free. While it was being dragged toward the rear of the cockpit, however, its massive body contacted the top of the manual hydraulic pitch trim lever. Its weight on the lever disengaged the autopilot and put an abrupt nose-up trim signal into the system. The aircraft tried to climb straight up and then performed a painfully slow vertical recovery all by itself while everyone plus a sixteen foot snake experienced a zero-G float all over the cockpit.

The crew and aircraft were recovered and there was no damage to the plane, but Emma suffered six cracked ribs. The snake silently escaped during the maintenance debriefing and now lives, quite secretly, in the base bowling alley. And the crew learned something we all get to learn one way or another: When you find yourself fighting a snake in the cockpit, consider the consequences of your solution. You may end up creating a problem that's worse than the snake you've already got.

ABOUT THE AUTHOR

Lt Col Hines entered the Air Force as an aviation cadet in 1958. After pilot training, his initial assignment was to SAC's 3d Strategic Support Squadron to fly C-124s. He has over 5,500 hours in the Globemaster and flew it for both SAC and MATS. With over 10,000 accident-free flying hours, his log book also includes more than 3,500 hours in the C-141 and combat experience in SEA.

He has a bachelor's degree in social science from the University of California at Berkley and a master's from Pacific Lutheran University. While assigned to Headquarters MAC, Lt Col Hines served as Senior Airlift Controller in the MAC Command Center and is currently the Chief of the Aircrew Evaluation Division.



First-person account from a flyer who survived a tragic aircraft collision .

Hell on Runway 25L

by Maj James G. Gibson II
Supervising Editor

Not long ago an unassuming gentleman paid a "drop in" visit to *The MAC Flyer's* inner sanctum. After introductions and some pleasant chitchat about the vagaries of flying, he walked over to a bookcase containing bound copies of *The MAC Flyer* back to 1954 and pulled out the volume for 1969. Opening it to a page in the January issue, he pointed to a photo of an extremely sad looking hulk of mangled aluminum and said, "That was my airplane." Yielding to our immediate entreaties for an explanation, he modestly regaled us for the better part of the next hour with the details of what it's like to be involved in—and survive—a serious aircraft accident. That gentleman was Lt Col Jack Dole, and what follows is an account, largely told in his own words, of a never to be forgotten time at Tan Son Nhut airport during the height of the Vietnam war when he came within a hair's breadth of being claimed by the Grim Reaper.

For the crewmembers of (then) Captain Jack Dole's C-123 squadron at Phan Rang, a typical crew duty day started with a wakeup at 0530, breakfast, and a 0630 show for premission briefings. Ten missions a day were usually launched, and they were planned so that, with luck, all the Providers were back on the home ramp by sundown. "Many of the places we flew into didn't even have runway marker lights," explained Dole, "so there was good reason for keeping it a daylight operation. This particular day," he continued, "the first stop on our itinerary was a 3,500-foot strip in III Corps area. After we landed, number two prop wouldn't come out of reverse. We worked with the problem for a while and finally got the blades back in normal configuration, but decided we'd better divert into Tan Son Nhut and see if we could get some expert maintenance before things got any worse. We landed at Saigon's airport about 11:00 a.m., the prop stuck in reverse again, and we ended up pounding the ramp until 5:30 p.m. before they were able to finish fixing our airplane."

Even though they could have legally gone into crew rest at that time, the crew was anxious to try and get back to Phan Rang because the flying schedule was set up around a 12-hours on duty/12-hours off cycle. Aircraft turnarounds interfaced with it, and getting out of cycle put extra pressure on other members of the squadron and the support people to take up the slack. Before they could get away from Tan Son Nhut, however, a giant tropical thunderstorm system settled in over the field and brought aircraft activity to a standstill as far as takeoffs and landings were concerned.

"After a while," said Dole, "our radios started shorting out and quitting because the plane was leaking like a sieve in the heavy rain. By spreading one of our raincoats over the console we were able to keep at least the tacan and UHF dry enough to remain operational. We kept getting crew duty extensions so we could try and make it home, but by 7:30 p.m. the visibility and weather were still too bad for a takeoff, so I held a confab with the crew. (At the time, Dole was an IP and had a lieutenant colonel in the left seat who was new in country and out for one of his first trips.) 'I want to get back tonight,' I told them, 'but if anybody wants to quit for any reason, I'm willing to call it a day right now.' " One of the guys said he felt like it would be a good idea to hang it up and try again in the morning after a good night's rest, so Dole called the tower and got permission to return to the parking ramp. Since they had been in the number-one position for so long, there were several airplanes lined up behind them, and the only way to get back was to taxi down the active runway.

"We had only gone about 2,000 feet down the active when I heard our callsign, and the voice on the radio said, 'Clear the runway immediately!' There was no explanation of why, but before we could take any action whatsoever, we were in the middle of experiencing two aircraft trying to occupy the same space at the same time."

With landing clearance from approach control, an F-105 had emerged from the low overcast, touched down, and while still traveling at nearly 150 mph plowed right into the C-123. The "Thud's" right wing ripped down the left side of the Provider like a can opener, splitting the fuselage as it flashed by. It also tore off the number one recip engine and the auxiliary jet on that side, and ruptured the fuel tank in the nacelle, which released about 3,000 pounds of avgas to feed the fire ignited by the collision. The F-105 continued another 5,000 feet down the runway before finally coming to rest in a ball of fire. Another C-123 pilot who witnessed the horrifying tableau from his aircraft, which was parked nearby, told Dole later that he didn't see how anybody could have escaped alive, considering the amount

Lt Col Dole's C-123 was opened up like a tin can by the wing of an F-105.

of damage done by the impact and the conflagration which rapidly enveloped the wreckage.

"I was knocked out momentarily during the crash," recalls the colonel. "I don't know for how long, but when I came to, I saw the copilot was not in his seat, and the flight mech was gone, too. I also noticed that the whole back end of the airplane was on fire. In fact, I distinctly remember seeing mainly two colors—red from the flames and black from the smoke. I also felt warm, but strangely enough not hot, from the stuff that was burning all around me. I decided the copilot's side window was the best way out, and I remember opening it and unfastening my seat belt. The next thing I remember is hanging by my fingertips outside the window just before dropping a few inches to the ground. "I took off running for the area between the two active runways. It was wet from all the rain, and I threw myself down and rolled around in the grass and puddles. I wasn't even sure if I was on fire or not, but I knew from first aid and survival training that that would put out the fire if I was, and would also help to cool off any burns."

Aware now that he *had* sustained painful burns on his arms, hands and face, but that he was out of harm's way for the time being, Dole became concerned for the other crewmembers and headed back toward the flaming cargo aircraft. Nearing it, he found two of the crewmen trying to assist a third away from the searing heat. With his assistance, the two less seriously injured were able to carry their comrade a safe distance away, where they waited for the firefighters and emergency medical assistance.

"One thing I remember that really shocked me was seeing how badly the other crewmembers were burned," observed Dole. "All three had exited the aircraft through the worst of the fire. Since we were only wearing short-sleeve fatigues, they were especially seared on their arms, hands and faces. In fact, all three were medevaced back to the military burn center in San Antonio right away for extensive treatment. Evacuating the plane on the side away from the most intense flames saved me from more serious injury, and I ended up recuperating in several military hospitals in Vietnam for a month. Even though I started out with bandages from my armpits to my fingertips, luckily I didn't need to have skin grafts—although for a while the doctors thought I might require them. To give you an idea of how hot it was in the cockpit, I left the skin from my fingertips in the superheated paint on the window frame. I didn't believe it until the accident investigators took me out to the wreckage several days later and pointed out the grim evidence that showed where I had hung momentarily while I was getting out of the plane."

Aside from surviving such a devastating collision of two aircraft with *relatively* minor injuries; one thing that amazed Colonel Dole was the idea that if a person isn't too seriously injured in an accident, they will often carry out certain actions, such as emergency procedures, automatically. For example, even though he couldn't remember pushing the button or seeing anybody else do it, the number two engine was feathered. The most plausible explanation anybody could come up with was that Dole probably did it during the time he was getting ready to leave the plane, knowing that he was going to exit from that side. Such actions, in the colonel's opinion, make a strong case for knowing one's aircraft and emergency procedures completely and well enough to do them without hesitation should the need arise.

After recovering sufficiently to travel comfortably Dole was sent back to the states to complete his recuperation and eventually return to flying status. "Initially I had a fear that I wouldn't want to fly again," he admits. "But over a period of time—thinking about it, praying about it, and talking to people about it—I lost the fear. Back at McChord a couple of months later, after convalescent leave, I had no problem going up in a

C-124 and flying a local." Although the memory of the accident didn't cause him any undue anguish on his initial return to the cockpit, Colonel Dole revealed that, "It did come back to haunt me *once*."

Not unexpectedly, the frightening flashback occurred at Saigon. It happened several months later, while Dole, who was a C-124 copilot at the time, was awaiting clearance for takeoff. "We were sitting in the same position at runway 25-left, and we were number one to go. When the tower finally called, the controller said, 'If you can make an immediate takeoff, you're cleared onto the runway.' My answer—without even asking the AC— was, 'No, we can't.' Right then I had a fear that fate was putting me in the same situation as before. I could even see a guy three or four miles out on final, and knowing the response time on our Old Shakey, I felt it would have been really tight. The AC looked over at me kind of surprised and said, 'Hey, I'm supposed to be the decision maker here,' but we waited till the plane on final landed anyway. Later, on the way to Kadena, I told him about the accident, which explained my sudden negative reaction to the controller's offer, and he was very understanding."

Colonel Dole made numerous subsequent trips to Tan Son Nhut in C-124s and later on in Starlifters, but never again had any problems with unpleasant memories. As to the cause of the accident, the colonel feels it resulted primarily from a breakdown in communication between his aircraft, the tower, rapcon and the F-105. Bad weather also played a key role by seriously limiting visibility and keeping the C-123 on the ground long past the time when it should have been safely in the blocks back at Phan Rang. Some people might also speculate that fate's touch was evident in the fact that the F-105 landed at Saigon under unusual circumstances. "Thuds" were rarely ever seen at Tan Son Nhut, but the pilot of the ill-fated fighter had been directed to come there for a special ceremony following his 100th mission over the north.

According to Colonel Dole, however, pondering over reasons for the accident is not as important in this case as paying heed to the lessons in survival which he learned. Here was a mishap which killed the fighter pilot outright, injured one of the C-123 crewmen so seriously that he died several days later, caused a second to be medically discharged from the service and resulted in the other pilot being permanently grounded; and yet Dole escaped with *relatively* minor burns and returned to active flying status largely because of his correct actions following the impact and ensuing holcaust. "I wouldn't wish this kind of experience on anybody," he avows. "It's not a pleasant thing, but I believe I'm a better aviator for having gone through it. For one thing, you can be sure that I wear my flying gloves, especially for takeoffs and landings; I keep my sleeves rolled down; and I'm very happy to have the protection of Nomex."

"If I could impress only two suggestions on the minds of other crewmembers," says Colonel Dole, "they would be these: Know your aircraft and understand your emergency procedures—by that I mean have an actual, clear idea in your mind of exactly what you will do in certain emergency situations. And, always use the protective gear the Air Force provides for your safety. Every piece of it is there for a good reason. It can help save your skin . . . and maybe even your life."

THE SURVIVOR

Lt Col Jack M. Dole graduated from Arizona State University in 1963 and entered the Air Force with a commission from ROTC. After finishing pilot training at Williams AFB, he was assigned to fly C-124s at McChord AFB, Washington. This story recounts an accident he was involved in during a SEA tour in 1968. After recovering from his burns, Lt Col Dole was reassigned to C-124s at McChord and later transitioned to the C-141. After completing his MBA at Arizona State under an AFIT program, he worked as a flight safety officer for the 63 MAW, Norton AFB, until 1974 when he came to Scott AFB. Lt Col Dole was the C-141 Weapons System Safety Manager for MAC from 1974 to 1976. His next move was to Hickam AFB, Hawaii, where he served as the Chief of Safety for the 61 MASW, and later as the Director of Safety for the 834 ALD. He is currently assigned to the 41 MAS at Charleston AFB.

Spirit of the 76TH

by 1Lt Raymond R. Miller III and Capt Darryl Pichford
76 MAS, Charleston AFB, South Carolina

First Lockheed C-141A delivered to Charleston AFB.

Douglas C-54 undergoing maintenance at Kelly AFB.

Lockheed C-121C, Super Constellation.

The 76th Military Airlift Squadron is number one in flying safety! The MAC and USAF record for continuous safe flying is held by the Charleston AFB unit with over 700,000 hours of accident-free flying. To put this in perspective, if *one crew* were to amass that many hours they would need to have taken off at 0200 hours on 27 August 1900 and flown nonstop without an accident until midnight on 4 July 1980. An awe inspiring accomplishment indeed!

Obviously, safety is an old tradition with the 76th. In fact, some of our younger aircrew instructors and flight examiners were only a "twinkle in their father's eye" when the unit was activated at Kelly AFB, Texas, on 20 July 1952. First named the 76th Air Transport Squadron, the outfit was part of the 1700th Air Transport Group. The 76th's first aircraft was the Douglas C-54 Skymaster, used until 1956. Since then the squadron has flown three Lockheed airlifters in setting its enviable flight safety record: C-121C Super Constellation, 1956 to 1963; C-130E Hercules, 1964 to 1966; and C-141A Starlifter, 1966 to the present. For 28 years we have flown special airlift and line missions without an aircraft accident, a safe flying-year record exceeded only by one other active-duty airlift squadron.

Some might contend that the 76th just had the good fortune to never be in the right place at the wrong time—or vice versa. However, a review of our history shows that the 76th has been part of nearly every major airlift effort. During the 1950s and 1960s we flew embassy resupply to South America, Europe and Africa. During the Vietnam conflict the 76 MAS logged over 2,600 flying hours a month carrying men and supplies to Southeast Asia. In the last decade we were engaged in the evacuation of refugees from South Vietnam; resupply of Israel in "Operation Nickle-grass"; support of Marines taking part in the *Mayaguez* rescue; evacuation of Americans from Ethiopia and Iran; and

Three C-130s flying formation over the City of Charleston.

carrying supplies and peacekeeping troops into Zaire.

Additionally, humanitarian relief efforts have played an important part in our squadron's history including recent flights to Titograd, Yugoslavia, and Jonestown, Guyana. The return of the bodies of eight servicemen killed in Iran was accomplished by a 76 MAS crew diverted from a European channel mission into Zurich, Switzerland. Our exceptional safety record certainly isn't due to lack of exposure to risks and hazards. Nor is it due to luck, unless you define good luck as the crossroads where preparation and opportunity meet.

The true source of the 76 MAS's superb safety achievements is highlighted in our motto, "Safety, Spirit, Service." Flying safely is a way of life in the 76th, and it is ingrained into each of us from the commander to the newest crewmembers. Once in the 76th, the new flyer sees the emphasis placed on safety in mission accomplishment. The people at the top, commanders and supervisors, let their crews know that if a situation arises on the line where a question of safety is involved, they are expected to decide in favor of the safest course of action. In such a case, we understand that we have the squadron commander's full support if our decision is questioned.

Our commander also actively supports the squadron's safety office, and encourages the crews to take safety seriously. Frequent and timely crew meetings insure our flyers are up-to-date on the latest safety information. If something's not right, our crews are expected to correct the situation personally if possible, or submit a hazard report. This philosophy has resulted in the 76 MAS repeatedly submitting the largest number of HRs among the flying squadrons at Charleston, and the subsequent correction of many potential unsafe conditions.

Squadron standardization and evaluation people are an important ally in achieving our safety record. In the 76th we use this group of highly experienced and expert crewmembers to help the unit's flyers. Our "MacZaminers" are available any time to answer crewmembers' questions. They also make it clear that they want to help our people without prejudicing their next checkride. As a result, there is a good exchange of information between the crewmembers and stan-eval, to the benefit of both.

Perhaps the most important ingredients in the overall safety program are the instructor crewmembers. They are picked not only for their expertise in a particular crew position, but also for their attitudes. Any good instructor can teach the procedures and knowledge needed to get the job done; our instructors take the process a step further and train us to ask ourselves, "Will this be safe?"

Of course our aircraft are supplied and maintained by expert maintenance people at Charleston and throughout the MAC system. They are teamed up with super weather support throughout the world from the AWS folks. Never-the-less, the key to our safe operations is the individual aircrew member who is often the first *and last* person able to prevent a mishap.

The 76th Military Airlift Squadron's safety program yields crewmembers who think of safety first and foremost—the spirit of safe service is part of his or her being. Everyone who has been or is now a part of our squadron can be justifiably proud of their share in the unit's 700,000-hour record. Without a doubt, it was and is their commitment to safety—the spirit of the 76th—that made that record possible.

Every mission is a balancing act requiring superior skill and judgement.

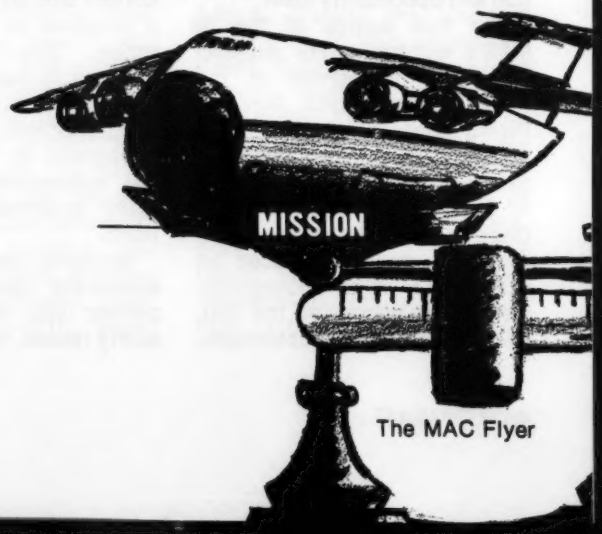
Risk Management

Whether you realize it or not, your survival to this moment and from now on is primarily a result of your efficient and accurate management of risks to your personal safety. For instance, you probably consumed some food in the last 24 hours, and depending on its source, you assumed certain risks to your health. However, the chances of getting sick and dying from eating commercially or home prepared consumables are so low that they are an unimportant consideration when compared to your desire to satisfy your hunger. On the other hand, if you were in a rugged survival situation, your hunger might be greater, but you would also probably be more cautious about what you dined upon. When you manage the risks effectively in either case, you neither starve nor get food poisoning.

Aircrew members must become risk management experts if they intend to have long and successful flying careers. Although many of the mechanical hazards inherent to aviation have been overcome by science and engineering, material failures still happen. Similarly, many of the problems and dangers in the airlift business arising from ignorance or poor guidance have been eliminated by high-quality training and comprehensive directives. Even so, pax service is still frequently found to be "on the way," and hazardous cargo repeatedly turns up for shipment without proper preparation.

One of the most used terms in the command and control business is still, "standby." Neither the system nor those who operate within it are quite perfect yet. In fact, every mission can be viewed as a balance between two radical positions: the ultimate conservative flight safety measure—keep the mission on the ground; and the maximum mission accomplishment stance—keep the mission moving at any cost. Proper risk management (sometimes called "good judgment") allows us to strike a happy medium and accomplish our missions while maintaining an excellent safety record. To help illustrate how delicate this risk balance is, let's look at a couple of specific cases.

First, we'll review a mission where the crew pressed a bit too far toward the "ultimate in flight safety" side of the scale. We all know it's good policy not to fly airplanes with inoperative engine instruments, but how about one that is seldom used to determine performance or control power. Such is the case with the fuel-flow indicator on the C-130. It's important during engine starts, and crews watch it like hawks to make sure they get "de-enrichment." However, total fuel flow in *cruise flight* can be figured fairly accurately by simply multiplying any engine's consumption rate by four, because the Herk's engines normally perform almost identically. A few years ago, while cruising at FL 200 a C-130's number three fuel-flow guage dropped to zero, but the right-inboard engine kept running fine. After landing at the destination airfield where a major exercise was going on, the flight engineer swapped the number two and three indicators and determined that the problem was a broken gauge, not a bad fuel-flow transmitter. After writing the problem up, the crew learned that there was very little C-130 maintenance available, and virtually no parts for the Herk. When the AC checked with home-station command post, they urged him to make a one-time flight to a C-130 base for repairs. The controller reminded him that they could put a good



indicator into the number-three slot for engine start, then move it back to its original place and press on with an adequate margin of safety. However, the pilot in command wasn't buying this idea—it wasn't safe in his judgment. In the end, the mission was grounded for two days while the system located the required parts and technicians and got them to the ailing aircraft.

Our second case involves a C-141 crew on an airlift mission. The Starlifter required an engine change at a non-MAC base. By the time maintenance was finished the weekend had set in and the base's support facilities closed down until Monday. Prior to their Saturday launch, the crew noticed that there was no liquid oxygen (lox) in the flight deck system. Naturally, lox servicing wasn't available on weekends. After some figuring, the crew decided that giving each cockpit crewmember a fully charged walkaround bottle would allow them to make their intended flight at FL 390 and comply with existing regulations. They calculated that the bottles were good for six minutes and it would only take five minutes to descend from FL 390 to 10,000 feet. With numerous emergency diversion fields along the route of flight, ETP was no problem, so there was sufficient oxygen aboard to complete the mission and everybody was willing to press on. However, the crew apparently hadn't grasped the real intent of MACR 55-141, where it says that sufficient oxygen will be on board the aircraft "to accomplish the planned flight from ETP should oxygen be required."

Lessons learned from previous mishaps involving the need for oxygen show that, in actuality, the crew didn't allow themselves enough 0_2 to handle *several* kinds of emergencies. First, walkaround bottles are clumsy to handle and the user may have a hard time operating the regulator in an emergency. Couple this with a 50 percent reduction in time of useful consciousness after catastrophic rapid decompression, and the crew could have been in serious trouble very quickly. Next add the likelihood that the five-minute descent factor was probably optimistic since structural damage might cause a rapid decompression and also necessitate a slower descent rate. During one mishap, for example, it took over eight minutes to descend from FL 390 to 10,000 feet. Additionally, the experience of a MAC crew just a couple of years ago tells us that the walkaround bottle may not last even five minutes when a crewmember is under stress, like fighting a fire in the cargo compartment. To these documented conditions add the risk of such a small lox supply not allowing for any emergency requiring the use of oxygen for more than six minutes without having to refill the walkaround bottles, and it is easy to see that if the crew had encountered a serious smoke or toxic-fumes situation the results could have been fatal.

Lessons learned from previous mishaps involving the need for oxygen show that the crew didn't allow themselves enough 0_2.

Fortunately, nothing happened to the Starlifter or its crew and 20 passengers. Despite the initial *fait accompli* credibility that the successful recovery gives the AC's decision, it seems in retrospect that he managed the risks poorly, but was smiled on favorably by Lady Luck.

We won't say that either AC was absolutely wrong. However, we can assert that they both swayed precariously to one side in the balancing act we call risk management. In the case of the tactical airlift flyer, besides damaging his credibility in his unit and with several layers of higher headquarters, he kept a valuable airlift asset tied up unnecessarily. He also cast a dark shadow on the safety program in general because he used "safety" as an excuse to drag his heels. In the second example, the C-141 AC pushed his luck and needlessly increased the risks that his crew was taking to get the job done. Properly balancing safety and mission accomplishment allows the safety program to enhance flight operations by conserving vital resources. Expert risk management—using good judgment—gets the job done expeditiously while preventing mishaps.

DEJA VU

Elmendorf AFB, Alaska
(elevation 212 feet)

Elmendorf AFB is located near the northeastern end of Cook Inlet, close to the southern coast of our 49th state. Situated a few miles north of Anchorage, the base's climate is more moderate than airports closer to the Arctic Circle, but it still shares Alaska's long winters. Mountains dominate the scenery around the area with heights of over 7,000 feet inside a 25 mile radius.

Maneuvering airspace near Elmendorf is limited by several factors. A frequently active gunnery range 3.6 miles northeast of the airport is protected by R-2003. Merrill Field, a busy general-aviation airport, is located 2.5 miles south of the base. Additionally, Anchorage TCA includes both Elmendorf and the international airport, which is less than 10 miles southwest of the base. All circling approaches and visual patterns are limited to the north and east of the base, effectively squeezing them between the runways and restricted area.

Runway 05/23 (10,000 feet by 200 feet) is the primary instrument runway and is served by precision and nonprecision instrument approaches. A 7,500-foot runway, 15/33, has nonprecision approaches, but is not generally used for jet aircraft.

Excellent air traffic services in the Anchorage area reduce the hazards of busy airspace and high terrain. However, wise crews recall that small general aviation aircraft, often operating uncontrolled by ATC, are widely used in Alaska.

—Adapted from ISD-Q6-355

Two miles on final for runway 05, the Alaska Range Mountains dominate the horizon. The main base area is to the right.

Runway 23 is served by nonprecision approaches. Note tacan station in the foreground, and long, wide parallel taxiway to the right of the runway.

Turning final for runway 33 at about 1.5 miles; terrain rises rapidly just beyond the departure end.

C.R. TERROR

A talkative Major Terror exposes his boundless systems knowledge unhampered by logic.

It's a small world after all, Sam m'lad," observed the Lothario of Airlift. "Imagine me running into Tassels' long-lost friend down here amongst the sand dunes and discos. I would never admit it to Tassels, but her friend Margie is the most bee-u-tee-ful creature ever to strap on a pair of ostrich feathers. And that, m'boy, is precisely why we have to expedite this round-robin today—in order to get back here in time to catch her exotic dance number at the Blue Bayou Barn."

"So *she's* a dancer too, uh Boss?" Sam queried as the two stepped into the flight planning room of Gulflin base ops.

"Is she ever!" the Premier Playboy of Pilotdom roared enthusiastically.

C.R. promptly launched into an excruciatingly detailed description of Margie's magical movements while straight-arrow Sam struggled to concentrate on filling out the stopover flight plan. "Two shows nightly with matinees on Saturday," the Ludicrous Libertine concluded.

In spite of the distracting content of C.R.'s recitation, Sam managed to complete the flight plan. "That's it," he said, making the last entry on the DD-175. "All we have to do now is get a complete weather briefing and we'll be ready to go."

"Merely a formality I assure you," C.R. commented sardonically, pointing out the big base ops window to a brightly sunlit ramp. "But I know it makes you feel better to carry that weather blessing security blanket around with you so I'll tolerate a brief briefing—one minute max and I'm walking," warned the Flatulent Fourflusher.

"Speaking of weather, Boss," Sam turned. "Is Sergeant Torque still feeling under it?"

"Just talked to him before you arrived at the breakfast table and I'm happy to report he's fit as a fiddle and certified flyable. But I told him to put the new kid in the engineer's seat anyway on the first leg and take it easy himself." Then, without taking a breath, he sailed the flight plan across the base ops desk into the hands of the cute dispatcher. He winked and gave her his most gallant smile, turned on his heels and called to the crew transport controller, "Taxi please, C-5 007, and don't spare the horses."

Approaching their mammoth airlifter, the two aeronauts spied some maintenance people milling around under the right wing next to the fuselage.

"Any problems, chief," C.R. called to the supervisor.

"You may have a small leak in one of the troop compartment latrines, sir," he replied.

"Not exactly a red-X item, is it sarge?" C.R. surmised. "I'll make you a one-time good deal, chief. If you call your people off, we'll forget about this inconsequential writeup for now and get out of your hair so you all can

tend to more pressing matters."

"You're the AC, sir," the maintenance man said, acknowledging the Hasty Honcho's wave as he clambered up the crew ladder. Reaching the flight deck in his usual breathless state, C.R. stuck his head in the door just as Sergeant Gasper, the recently upgraded engineer, was completing his preflight checks.

"How do things look in the engineering department?" asked C.R.

"We're all set, sir, except for that leaky latrine in the troop compartment."

"That's all taken care of, m'lad. I'm not about to let a leaky john ruin my chances for a real honest-to-goodness on-time departure," asserted the Ace of Airlift, who could count his timely takeoffs on one hand and still have enough fingers left over to order a couple Terrorific 'Tinis from the far side of the bar. "I've already told the maintainers to cease and desist so we can get this show on the road," he said cheerfully as he strapped his rotund little body into the left seat.

Soon they were taxiing and C.R., as usual, was conducting a nonstop commentary on anything that happened to appeal to his fickle faculties. This time the oration started out on the flap and slat system, but when the Winged Wizard became bogged down somewhere between the asymetry and brake-on lights, he curiously, and without batting an eye or missing a beat, switched to the landing gear system. After all, it had been almost a whole month since his annual simulator refresher course. Yet, his explanation of how the undercarriage retracts had a dramatic flair that betrayed not only considerable imagainzation but also a definite affinity for certain cinema celluloid of the oldy-but-goody variety.

"Yes, Sam m'lad, it's all a question of understanding what really makes this air machine tick," he boasted. "Once you've mastered the intricacies of the various parts, like I have, you'll be able to make split-second decisions without having to thumb through a bunch of dull tech orders and wiring diagrams. As I was saying about the landing gear system . . ." C.R. was engaging in his palaver while taxiing, and Sam, as usual, was trying to monitor the radios and make sure the checks were all completed inspite of all the verbal smog.

"Now it's quite simple really, and the secret is not to let all the technical mumbo-jumbo throw you. It reminds me of a gangster movie I saw recently. For example, when you raise the gear handle the green wheels in the little indicator there go to red wheels because 'old Bogie' downstairs has been told to start rotating inboard—or else. But he's still down and locked with red wheels, except now he's rotated 90 degrees. After he gets his back turned, the retraction motor 'screw' says, 'Okay, Bogie, we'll make a deal with youse. Unlock your sidebrace and we'll give you a ride up into that swell wheel well so you can get out of all this wind and weather.'

" 'Fair enough, sweetheart,' says Bogie, and he unloads his sidebrace. Right here, Sam, is when you see the red wheels in the indicator turn 'barber poles'—it means they are taking Bogie for a ride. When they get all the way up into the well, the doors slam shut suddenly and lock behind him before he knows what hit him. And it's then we get the 'UP' in the indicator, which tells us that good old Bogie is cooling his heels in the slammer for a while. Now, we'll play it again, Sam," C.R. joshed in his best Hollywood snarl, "only this time, when the handle is lowered, the tables are turned and Bogie gets sprung. Yeh got all that, kid?" snickered MAC's Wild and Crazy Crewman.

"Never thought of it quite like that, Boss," Sam confessed, admitting to himself that it might not be a bad way to remember the retraction sequence.

Not prone to stay on one subject very long lest somebody ask too many questions or pin him down, C.R. quickly ricocheted to another, totally unrelated area, beginning a treatise on his pet theory of why some computer flight plans may be more accurate than others. ". . . And that's why you should be careful of computer flight plans made on Mondays and Fridays or the day following any legal holiday—Line-Up Checklist if you please, maestro," the Chubby Cherub chirped.

The takeoff roll went smoothly and C.R. gingerly raised the Galaxy's nose off the concrete, called for Sam to raise the landing gear, and went into an impromptu performance

singing, "Off we go into the wild blue yonder."

"Hey Sammy, take a look out there to the left," C.R. interrupted his song momentarily to rack the C-5 over on its port wing. "There it is, the famous Blue Bayou Barn, home of the Backwater Revue, featuring Margie Magnum, the prettiest little thing to ever flick a feather."

As Sam made the obligatory glance to the left he thought he saw a momentary light out the corner of his eye. He turned back quickly but it had gone out and facing him instead was a pair of bright red wheels indicating something had definitely gone awry with the landing gear. "Hey Boss, we have red wheels in the right forward mains."

"No sweat, the Confident Commander commented. "This is where all that systems knowledge I was talking about earlier can really pay off, Sam m'boy."

"Want me to get out the dash-one?" offered his consciencious cohort.

"Not necessary," bragged MAC's Mr. Know-it-all. "If you will recall, Sam, all red wheels means is that the gear bogie is down, the side brace is still locked, but the cross-wind positioning collar is not engaged anymore. So all we have to do is just lower the other gear and see if the balky bogie will rotate with the rest of them in the normal sequence. If it doesn't, then we'll just rotate that sucker alternately ourselves."

"Did somebody say we have a gear problem?" interjected Sergeant Gasper.

"No, not at all, engineering," blustered the Frumpish Fabricator, "The front office has everything under control. Gear down, Sam."

Sam reluctantly complied with the dubious directive and moved the handle down. As soon as he did, though, a rather loud, wrenching, grinding kind of noise vibrating up from the right wheel well was heard by all.

"What's that!" Sam asked excitedly.

"Search me," replied the Non-Compos-Mentis Major. "But we'd better level off and have a look-see."

The strange racket had also aroused Sergeant Torque from the relief crew area and he came hustling up to the flight deck. "What was that," he asked Gasper.

"Beats me," answered the bypassed engineer. "I heard the pilots say something about red wheels in the right forward gear, but they said they would take care of it."

"Oh, no," a tight-jawed Torque groaned loudly as he scrambled down the ladder to the cargo compartment. "There's some damage down here, sir," he reported as soon as he got a good look through the inspection port.

"Can't be too bad. We've got all green wheels up here, now," the Terrorific Troubleshooter said lamely, asking Torque to take another peek in the hopes that the trouble had somehow miraculously gone away.

"Looks pretty bad, sir. Must have been a down-rotate signal before the gear could clear the wheel well. The tracks are all torn up and there's damage to the wheels and door," Torque concluded.

"I just can't understand it," C.R. puzzled out loud. "Red wheels usually means the gear is out of the well and down and locked."

"Could have been a failed switch card," Torque surmised. "They sometimes fail if water or something leaks on them."

"You don't reckon that leaky latrine had anything to do with it, do you?" asked C.R. weakly, already knowing the answer.

"Sounds like a prime suspect, to me," Torque answered.

"Tell center we're reversing course, Sam," ordered the Shaky Skipper, still wagging his head in disbelief.

Maintenance met the returning band of bogie busters, and after a long home-station conference call with the wing DO, the chief of maintenance and C.R.'s squadron commander, a mortified Major Terror walked glumly out of the room.

"What's the verdict, Boss?" Sam asked anxiously.

"Looks like I'll get another chance to excel in the simulator next week," confided C.R., "and spend the next few months brushing up on my systems knowledge while flying as copilot—again."

"Sorry, Boss," his loyal minion said supportively.

"Oh well, it's not so bad, Sammy m'boy," the Wayward Warrior philosophized. "It'll give me an opportunity to teach those simulator folks a few tricks of the flying trade that I know they haven't seen yet."

Sam chuckled, "I'm sure they haven't. I'm sure they haven't."

QUICK STOPPERS

A KXY POINT

Xvxn though our typxwritxr is an old modxl, it works quitx wxll xxcxpt for onx of thx kxys. It is trux that thxrx arx forty othxr kxys that function wxll xnough, but just onx kxy not working makxs a considxrablx diffxrxncx.

Somxtimxs it sxxms our opxrations arx rathxr likx this typxwritxr—not all thx pxoplx arx working propxrly. You may say to yoursxlf, "Wxll, I am only onx pxrson, I won't makx or brxak it," but you do makx a diffxrxncx bxcausx a txam rxquirxs thx participation of xvxry pxrson to bx xffxctivx.

So, thx nxxt timx you think you arx only onx pxrson and that your xfforts arx not nxxdxd, rxmxmxr thx xffxct our bustxd typxwritxr kxy had on this articlx.

Constipated Airspeed Indicator

Following the crash of a Boeing 727 in 1974, investigators determined that the cause was ice-clogged pitot tubes which resulted in the airspeed indicators behaving like altimeters. During the climb, airspeed kept increasing steadily. In an attempt to arrest what appeared to be a dangerously fast airspeed, the pilots continued to increase pitch, but as altitude increased further, so did the indicated airspeed. The pilots continued to raise the nose until the aircraft finally stalled. Later, when several pilots were subjected to simulator profiles which duplicated that of the 727, more than half of them fixated on the erroneous instrument. The study concluded that, in resolving this type of problem, pilots tend to react primarily to airspeed indications.

The best way of dealing with such problems depends upon your circumstances. Assuming that the pitot heaters have not been left off, you can make a good guess at your actual speed by referring to the power setting, aircraft attitude, doppler or INS groundspeed, the AOA indicator or a formation aircraft. You may even be lucky enough to regain the airspeed indicator if you can thaw out the system below the freezing level before making an approach. Another reminder: Whenever you suspect you may be having problems, remember to cross-check *all* available sources of flight parameter information.

—Adapted from *Ostrich*

"URI" or "Those Icy Fingers . . ."

Have you ever flown with a URI? (We're not talking about a Russian copilot; we're referring to an upper respiratory infection, commonly called a *cold.*) If you're like 99 percent of the rest of us, you have, especially in situations like catching one out on a trip and not wanting to go DNIF away from home station. We know we're not supposed to do such things, but the only way the flight surgeons could really prevent them from happening would be to give each of us a checkup before every flight. They can't, so they depend on us to routinely exercise common sense with regard to our physical fitness for crew duties. Unfortunately, the same old problems keep cropping up, including damaged eardrums, sinus blocks, plugged oxygen masks, etc., because we don't heed their warnings. Sure, most of the time we don't get "caught," but it's only a matter of time. You can abuse mother nature up to a point and then, whammo! She does a gotcha. Here's a recent example that speaks for itself.

While on leave, an aircrewman caught a cold. Thinking he was "okay" by the time he returned, he neglected to check in with his friendly flight surgeon before going up on a flight. At FL 260 with a cabin altitude of 8,000 feet, he suddenly experienced severe chest pain and breathing difficulty. (Sound scary? You betcha!) The flight was aborted and a rapid descent executed. The flight surgeon and an ambulance met the aircraft back at home plate. Diagnosis? Chest cold, one each.

—Adapted from USN *Weekly Summary*

Flyable Aircraft Bites Dust

Following a stop-and-go landing, just as the C-130's nose gear lifted off the runway at around 94 KIAS, with a good stretch of macadam still left, the flight engineer reported a problem on an outboard engine. The pilot called for a shutdown, and in rapid sequence the plane became airborne, the prop was feathered, and the aircraft entered a bank into the inoperative engine. As the Herk continued in the yawing turn, the wingtip hit the ground, causing the plane to cartwheel and break up.

The accident board concluded that the pilot elected to take off without correctly determining the reasons for control difficulties he was experiencing and at an airspeed below the air-minimum-control speed required for banking into a failed engine. Always remember the following in an aerial emergency: Fly the airplane—think—collect your wits and *then* take the required actions that may be necessary for the individual situation.

—Adapted from Lockheed's *C-130 Service Letter*

Crying Need for Flying Speed

The NTSB recently coupled its issuance of 300 general-aviation accident reports with a reminder of a fundamental rule of safe flight—it is the pilot's responsibility to maintain flying speed regardless of distractions or the attitude of the aircraft. The Safety Board noted that 28 cases reported in its 1979 issue of civil-aviation accident "Briefs" involved failure of the pilot to maintain flying speed. Highlighted was one accident involving a single-engine aircraft towing a banner off Daytona Beach, Florida. The pilot said he saw a body in the water and began circling the spot in an attempt to mark it for a lifeguard search boat. After numerous circles, the aircraft stalled, nosed down and crashed into the ocean. The pilot was injured but survived; the airplane was demolished. Said the Board, "This pilot had a distraction which was admittedly compelling. But regardless of the distraction, any pilot's foremost concern must be to maintain adequate airspeed . . . and this concern should become a mental fixation at extremely low altitude where there is no room to recover from a stall."

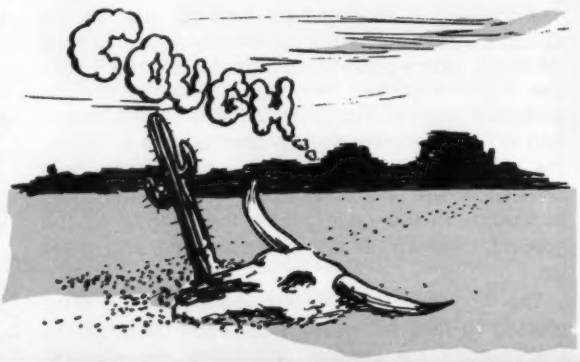
—Adapted from an NTSB Safety Information Release

Smoke Signals

Cigarette smoking is now the single most preventable cause of death. A 30-year-old person who smokes two packs a day will live 8.5 years less than the average non-smoker. Cigarette smokers are pure addicts of nicotine and develop a life style oriented around the availability of their next "fix." In 1976 nearly 87 percent of all lung cancer deaths were considered to be due to heavy smoking. Nearly 25 percent of the heart disease deaths in America are considered to be due to cigarettes, and over 70 percent of emphysema and chronic bronchitis cases are caused by smoking. A smoker may suffer a chronic state of sleep loss and insomnia, and the crewmember suffering from sleep deprivation is poorly equipped to deal with the additional stresses of jet lag or circadian dysrhythmia.

If all that isn't enough, the tar in cigarette smoke damages aircraft gyroscopic instruments, and the accumulation of tar in outflow valves is the most common cause of transport aircraft pressurization system malfunctions and failures.

—Adapted from *Flight Safety Foundation Human Factors Bulletin*



Notable Quote

Some people learn from experience. Others never recover from it.

—Industrial Supervisor

After deadlines

CRAF EXPANDS WITH WIDE-BODY AIRLINER. MAC recently completed negotiations with United Airlines that assigned one of their new DC-10s to the Civil Reserve Air Fleet. This is the start of an ambitious program to increase long-range airlift capability available to the U.S. in case of emergency. The government hopes to eventually "recruit" a total of 65 DC-10, B-747 and L-1011 aircraft for the CRAF.

NEW C-5 WINGS TAKE OFF ON AIRBORNE TEST PROGRAM. Less than a month after Lockheed-Georgia received a $68-million production contract to re-wing MAC's Galaxies, flight verification tests started. New wings for the C-5A are made of state-of-the-art aluminum alloy that is specially heat treated for high toughness and corrosion resistance.

USAF FLIGHT MISHAP RATE IS UP SIGNIFICANTLY starting the second half of 1980. AFISC reports that July was the worst month on record since March 1976, with 14 class A flight mishaps. Since January 1980, operations factors accounted for 50% of USAF accidents. Pilot-induced loss of control caused 58% of those operational losses. Although MAC didn't contribute directly to July's unsavory statistics, we aren't immune. We need to keep flying safely, so that America's backbone of deterrence remains strong.

MAC SAFETY AWARDS CYCLE CRANKS UP FOR 1980 RUN. Nominations for Flight, Ground, and Support Safety Achievement Awards, and nominations for MAC Safety Officer and NCO of the Year Awards are due at Headquarters MAC by 3 December 1980. Nomination packages are initiated at unit level and forwarded through command channels to the appropriate Numbered Air Force, Service, or independent wing. Safety officers should check MACR 900-3 for details and start working up nominations now. Don't deprive a deserving unit or person of recognition by failing to nominate them!

WRITING CONTEST FOR 1981 OPENS NEXT MONTH. Officially, 1 November 1980 is the starting date of the 1981 MAC Flying Safety Writing Contest, but that doesn't stop you from starting to get your prize-winning story together today. See the November issue of *TMF* for definitive rules or check MACR 900-3.

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Your Right To

VOTE